

REMARKS

In response to the Office Action mailed August 9, 2006, Applicants respectfully request reconsideration. Claims 1-45 were previously pending in this application. Claims 1, 12, 17, 26, 37, 38, and 39 have been amended. New claims 46 and 47 have been added. Support for new Claims 46 and 47 is found in the specification as originally filed on page 9, line 24 through page 10, line 4 in reference to an envelope of an optical signal 417 illustrated in Fig. 4A. No new matter has been added by way of the amendments or new claims. As a result, Claims 1-47 are pending for examination with Claims 1, 17, and 37-39 being independent. The application is believed to be in condition for allowance.

Objections to the Drawings

The Office Action objects to drawings for not showing every feature of the invention specified in the claims. Specifically, the drawings are objected to for not showing the “time-to-frequency transformation” mentioned in Claim 26. The above mentioned limitation in Claim 26 has now been amended to a “frequency-to-time transformation.” As is explained in the specification on page 11, lines 6-10, an Inverse Fourier Transform may be used for a conversion from the frequency domain to the time domain. Figure 4C illustrates such a conversion by an Inverse Fourier Transform (see reference number 464). Accordingly, withdrawal of this objection is respectfully requested.

Amendments to the Specification

The specification has been amended on page 19, line 27. The equation “ $2 * D(t) =$ ” has been amended to “ $2 * D(t) = \underline{1}$,” with the underlined portion indicating the amended portion. This correction is clear from Figure 8 where $D(t)$ represents a random bit stream carrying network revenue traffic, taking on the values of +1 or 0, thus yielding an average value of .5 (as is indicated on Figure 8). Therefore, the time average value of $2 * D(t)$ clearly equals 1 (see specification page 19, lines 20-29). The amendment has been made in order to correct a typographical error and does not add new matter.

Rejections Under 35 U.S.C. §102 and 35 U.S.C. §103

The Office Action rejects Claims 1-4, 6-10, 14, and 15 under 35 U.S.C. §102(b) as being anticipated by Wong et al., U.S. Patent No. 5,062,703 (Wong). The Office Action also rejects Claims 11-13 and 16 under 35 U.S.C. §103(a) as being unpatentable over Wong in view of Selvan et al., “Network Monitoring for Passively Split Optical Fibre Networks” (Selvan). The Office Action also rejects Claims 5, 17-22, and 24-45 under 35 U.S.C. §103(a) as being unpatentable over Wong in view of Selvan and further in view of Akiyama et al., U.S. Patent No. 5,982,530 (Akiyama). Applicants respectfully traverse these rejections.

Remarks Regarding Amended Claim 1:

Amended Claim 1 includes “*modulating a data traffic optical signal* with a pilot tone and outputting the modulated optical signal onto the optical transmission path,” where the underlined element indicates the amendment presented in the claim. Support for Amended Claim 1 may be found in the specification, as originally filed, at least on page 8, lines 1-4 in reference to Figure 3.

Remarks Regarding the Cited References:

Wong illustrates a lightwave component measurement system that provides modulation measurements with the use of digital signal processing (abstract). As shown in Figure 3 (relied upon by the Office Action), optical reflections are measured by separating an incident *test signal* from a reflected one by means of an optical signal coupler 26.

Selvan illustrates a frequency domain reflectometry technique for characterizing and monitoring a passively split optical fiber network, in which the reflectometer continuously interrogates the fiber network by reporting upon the status of reflective nodes distributed throughout the passive optical network (introduction). In Selvan’s technique, a linearly swept microwave subcarrier is intensity modulated over a lightwave carrier and fed into a network as a *probe signal*.

Akiyama illustrates an apparatus for driving an optical modulator to measure, and compensate for, dispersion in an optical transmission line (abstract). The apparatus of Akiyama includes a driving voltage generator that generates a pulse driving voltage having a rising edge

and a decaying edge. An optical modulator produces a first pulse at the rising edge of the pulse driving voltage and a second pulses at the decaying edge of the pulse driving voltage. Thus, the *first and second pulses are both produced from a single driving pulse voltage* and are detected and analyzed for dispersion (abstract).

The Claims Distinguish the Prior Art of Record Taken Individually or in Any Combination:

None of the prior art references cited in the record teach or suggest modulating a *data traffic optical signal*. Wong instead teaches modulating a *test signal* which one of skill in the art would understand that such a *test signal* would not include data traffic. Similarly, neither Selvan nor Akiyama teach or suggest modulating a signal comprising *traffic data*. Selvan instead teaches the modulation of a probe signal and Akiyama teaches the modulation of first and second pulses. Thus, Claim 1 distinguishes over the prior art of record.

Claims 2-16 and 46 depend from Claim 1 and therefore patentably distinguish over the prior art of record for at least the same reasons.

Amended Independent Claim 17 (from which Claims 18-36 and 47 depend) and amended Independent Claims 37, 38, and 39 (from which Claims 40-45 depend) also include *modulating a data traffic optical signal* with a pilot tone. As should be appreciated from the above remarks relating to Claim 1, the prior art of record does not teach or suggest modulating a *data traffic* optical signal. Thus, Claims 17-47 patentably distinguish the prior art of record for at least the same reasons as mentioned in relation to Claim 1. Accordingly, withdrawal of these rejections is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims, Claims 1-47, are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS,
P.C.

By Mark B. Solomon
Mark B. Solomon

Registration No. 44,348

Telephone: (978) 341-0036

Facsimile: (978) 341-0136

Concord, MA 01742-9133

Dated: 12/14/06